

WHAT IS CLAIMED IS:

1. A device for processing packets of flows on a network link, the device comprising scheduling means for scheduling packets in a queue as a function of a priority
5 based on analyzing the incoming bit rate of the flows relative to a fair bit rate and in accordance with a fair queuing with priority algorithm.
2. A device according to claim 1, further comprising
10 admission control means for controlling admission of said packets into the device in accordance with admission criteria.
3. A device according to claim 2, wherein the scheduling
15 means send the admission control means admissibility condition data.
4. A device according to claim 2, wherein the admission control means comprise means for interrogating a list of
20 protected flows for each incoming packet.
5. A device according to claim 4, further comprising means for erasing flows for which the time elapsed since the last packet was received exceeds a threshold value
25 from the list of protected flows.
6. A device according to claim 4, wherein the admission control means comprise means for determining if the admission criteria are satisfied if a packet belongs to a
30 flow that is not in the list of protected flows.
7. A device according to claim 4, comprising means for entering a new flow in the list if the admission criteria are satisfied.
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8. A device according to claim 2, wherein the admissibility condition data includes:

- a fair bit rate value that represents the bit rate achieved by a data flow that always has packets to send, and

5 - a priority load value, which is sum of the lengths of priority packets transmitted in a certain time period divided by the duration of that time period.

9. A device according to claim 1, wherein the scheduling means schedule as priority packets any packets of flows
10 in the queue that are not in a list of active flows and as non-priority packets any packets of flows that are already in said list.

10. A device according to claim 1, wherein the scheduling
15 means schedule the packets in a PIFO queue.

11. A device according to claim 10, wherein a pointer P identifies the last of the priority packets at the head of the queue.

20 12. A device according to claim 11, further adapted to employ a list of active flows containing the identifiers of the active flows and wherein a time stamp is used for scheduling packets.

25 13. A device according to claim 11, further comprising means for writing flows in and erasing flows from the list of active flows as a function of the arrival and departure of packets of the flows.

30 14. A device according to claim 12, further comprising congestion measuring means.

35 15. A device according to claim 14, wherein congestion measurements are carried out as a function of a local time, a number of priority packet bytes transmitted during a current measurement period, and a number of

bytes that a dummy flow could send in said current measuring period.

16. A device according to claim 10, comprising means for
5 determining whether the PIFO queue is empty or not.

17. A device according to claim 1, further comprising
discrimination means for distinguishing classes of
service at admission control level.

10 18. A device according to claim 1, wherein the flows are
identified by a hashing function applied to address
attributes.

15 19. A method of treating packets of flows on a network
link, the method comprising a scheduling step for
scheduling packets in a queue as a function of a priority
based on analyzing the incoming bit rate of the flows
relative to a fair bit rate and in accordance with a fair
20 queuing with priority algorithm.

20. A method according to claim 19, further comprising an
admission control step for controlling the admission of
said packets into a device for processing said packets in
25 accordance with admission criteria.

21. A method according to claim 20, further comprising a
step of sending admissibility conditions to the means for
controlling admission of the data.

30 22. A method according to claim 21, wherein the admission
control step includes interrogating a list of protected
flows for each incoming packet.

35 23. A method according to claim 22, wherein flows for
which the time elapsed since the last packet was received
exceeds a threshold value are erased from the list of

protected flows.

24. A method according to claim 22, comprising a step for
determining if the admission criteria are satisfied if a
5 packet belongs to a flow that is not in the list of
protected flows.

25. A method according to claim 22, comprising a step of
entering a new flow in the list if the admission criteria
10 are satisfied.

26. A method according to claim 21, wherein the
admissibility conditions data include:

- a fair bit rate value that represents the bit
15 rate achieved by a data flow that always has packets to
send, and
- a priority load value, which is sum of the
lengths of priority packets transmitted in a certain time
period divided by the duration of that time period.

20 27. A method according to claim 20, wherein the
scheduling step schedules as priority packets any packets
in the queue that are not in a list of active flows and
as non-priority packets any packets of flows that are
25 already in that list.

28. A method according to claim 20, wherein the
scheduling means schedule packets in a PIFO queue.

30 29. A method according to claim 28, wherein a pointer P
identifies the last of the priority packets at the head
of the queue.

30. A method according to claim 29, further employing a
35 list of active flows containing the identifiers of the
flows and wherein a time stamp is used for scheduling
packets.

31. A method according to claim 30, further comprising steps of writing flows in and erasing flows from the list of active flows as a function of the arrival and
5 departure of packets of the flows.

32. A method according to claim 30, further comprising congestion measurement.

10 33. A method according to claim 32, wherein congestion measurements are carried out as a function of a local time, a number of priority packet bytes transmitted during a current measurement period, and a number of bytes that a dummy flow could send in said current
15 measurement period.

34. A method according to claim 28, including a step for determining whether the PIFO queue is empty or not.

20 35. A method according to claim 19, wherein a signal relating to the loss of packets is sent to a user.

36. A method according to claim 19, further comprising discriminating classes of service at admission control
25 level.

37. A method according to claim 19, wherein load sharing of flows over a plurality of links is effected with the aid of a function of address attributes including the
30 free portion of the flow identifier.